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GOVERNOR OF HAWAII



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DIRECTOR OF HEALTH

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In reply, please refer to:
EMD/SHW

October 30, 1997

H1011LKI

Mr. Carl Warren
Environmental Engineer
U.S. EPA Region IX
75 Hawthorne street
San Francisco, California 94105

Dear Mr. Warren:

Subject: Final Backyards Area Dissolved Phase Investigation Report
Chevron Refinery, Kapolei, Hawaii

We have reviewed the subject document prepared by Dames & Moore, dated August 15, 1997, and have the following comments.

1. General. According to the report, the LNAPL plume has only recently been delineated, and that the nature and extent of the dissolved constituents in groundwater has not been evaluated prior to this 1996 investigation. Thus, there is no historical evidence regarding the stability of the LNAPL or dissolved plumes, nor has modeling of the plume been attempted. As the report states, this investigation provides the "background" data with which future data can be compared with and argument regarding the adequacy of natural attenuation as a remediation method can be evaluated. Based on the intrinsic biodegradation monitoring data, it appears that natural biodegradation is occurring, however, it also seems as though biodegradation may be occurring under anaerobic conditions. Biodegradation under anaerobic conditions is much slower than under aerobic conditions. Without historical data, it is uncertain whether the rate of biodegradation will be as fast as the rate of groundwater transport (the report estimates one to two feet per day). Thus, we agree that the groundwater monitoring program is an important aspect for the evaluation of natural attenuation at the site.

In addition to the proposed sampling and analysis, a discussion on the type of evaluation that will be done on the analytical data and a contingency plan should be provided. There should be a plan outlining the basis for when it will be determined when natural attenuation alone is not sufficient and that active remediation should be implemented (i.e. when the selected down-gradient monitoring wells have concentrations that have statistically increased or have reached RBSLs). Sufficient lead time to develop and implement an active remediation plan would need to be incorporated.

2. Dissolved Phase Sampling. There was no discussion regarding the construction of the monitoring wells. We assume this has already been discussed in a previous report and that the monitoring wells have been constructed properly, such that the well screens straddle the water table to observe the presences of LNAPL; and the screened interval is generally consistent among wells to allow for adequate comparison.

3. Risk and Pathway Evaluation Summary. In Section 5.1.1 reference is made to the presence of COPCs in near-surface soils in the vicinity of the North and South Ocean Ponds. As stated in the report, nets have been placed at these ponds, thus, it is assumed that direct contact pathways for current and future on-site and off-site workers are incomplete and that the relative contribution of volatile COPCs in these soils relative to the volatile COPCs in LNAPL is considered minimal. Uncertain of how these nets are constructed, will they also prohibit direct ecological exposure? Please explain.

4. Risk and Pathway Evaluation Summary. The dissolved plume along the western boundary of the refinery was evaluated, however, the dissolved plume along the other perimeters were not evaluated. From the figures presented, it appears that the LNAPL plume has extended offsite in the north and east directions. Of primary concern, is the potential for offsite exposure via subsurface utilities and the open channel drainage ditch extending perpendicular from the southern perimeter and near the Hawaiian Electric Company's property. The location of the drainage ditch needs to be verified.

5. Risk and Pathway Evaluation Summary. The use of the Hawaii Department of Health Tier 1 Groundwater Action Levels may be inappropriate particularly for use as Groundwater RBSLs for fish consumption. According to *Risk-Based Corrective Action and Decision Making at Sites with Contaminated Soil and Groundwater*, surface water and drinking water standards (HAR 11-54 and 11-20) were used; and when surface water standards were more stringent, they prevailed even for groundwater that has potential for drinking water utility. However, the fish consumption values, even when more stringent, were not utilized (i.e. the action level for benzene in groundwater where drinking water is not threatened is 1.7 mg/l, whereas the level for fish consumption is 0.013 mg/l). Also note that the contaminant concentrations presented in HAR 11-54 and 11-20 are state regulations whereas the concentrations presented in the *Risk-Based Corrective Action and Decision Making at Sites with Contaminated Soil and Groundwater* are guidelines. The use of the Tier 1 Groundwater Action Levels as the primary basis for RBSLs over perhaps more stringent levels should be explained.

6. Risk and Pathway Evaluation Summary. The exposure pathway via ingestion should also be addressed for terrestrial birds and mammals under current and future conditions; and for organisms in ocean, pelagic birds and shorebirds under future conditions. Also, the potential exposure to chemicals in soil as well as groundwater and LNAPL should be evaluated for the construction worker under future conditions.

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7. Visual LNAPL Monitoring. At wells D7-15 and D7-33, LNAPL has not previously been observed; and that LNAPL was observed to enter the wells during purging. With this in mind, should all of the wells proposed to be visually inspected for LNAPLs be purged prior to measurement?

8. Dissolved Phase Groundwater Monitoring. Groundwater monitoring should be conducted quarterly instead of semi-annually; at least until there is some basis to assume that the dissolved plume is generally stable.

Thank you for the opportunity to comment on the document. If you have any questions, please call Ms. Lene Ichinotsubo at (808) 586-4226 of our office.

Sincerely,

A handwritten signature in black ink, appearing to read 'SYK Chang', is written over the typed name and title.

STEVEN Y.K. CHANG, P.E., CHIEF
Solid and Hazardous Waste Branch

SYKC:lki